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MAMMALS FROM ISLANDS IN THE GULF
OF CALIFORNIA, MEXICO

BY
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In 1928 the late Donald R. Dickey visited the Gulf of California and, although his was primarily a fishing and pleasure trip, he succeeded in bringing back a number of mammals from islands on which he had opportunity to trap. He obtained an especially good series of *Peromyscus* from Tortuga Island which proved to be of an undescribed species. He realized from his hasty visit to the more prominent islands that there was yet much to be learned concerning the mammal life of the islands in the gulf, particularly the smaller ones. Arrangements were therefore made in 1930 for Mr. Harry H. Sheldon to accompany, as mammal collector, Mr. Griffing Bancroft and party on a trip to the gulf in order to continue the work. In spite of adverse conditions Mr. Sheldon brought back a very respectable collection of mammals, but was unable to visit a number of the smaller islands on which small rodents were still to be found.

In the winter of 1931-1932 the writer had the privilege, as a representative from the California Institute of Technology, of accompanying Mr. J. R. Pemberton and a party on a cruise into gulf waters, the object being to bring the work that Mr. Dickey had started more nearly to completion. Because of Mr. Pemberton's keen interest in and kind consideration of our work we were able to visit all of the islands of any importance as far north as Mejía Island in the Gulf of California. As a result of the three trips into the gulf, mammals were collected on many islands that had not been visited previously by mammalogists. The present paper contains descriptions of twenty species and subspecies of the three genera, *Perognathus*, *Peromyscus*, and *Neotoma*, adding ten islands to the list already known to be inhabited by land mammals.

It is the intention of the writer to publish, in the near future, a general report on the mammals of the islands of the Gulf of California. However, it is thought advisable to describe in the meantime such forms as prove to be new to science, so that the records may be available to other workers in the field.

Genus **PEROGNATHUS**. POCKET MICE**Perognathus baileyi fornicatus** subsp. nov.

MONSERRATE ISLAND POCKET MOUSE

Type.—Male adult, skull and skin; no. 50,289, collection of California Institute of Technology; Monserrate Island (latitude 25° 38' N., longitude 111° 02' W.), Gulf of California, Lower California, Mexico; December 16, 1931; collected by W. H. Burt; original no. 3187.

Measurements.—*Type*: Total length, 202 mm.; tail vertebrae, 108; hind foot, 26; ear from crown, 7 (from notch, dry skin, 8.9). Skull: greatest length, 29.1; basal length (groove on incisor to condyle), 24.6; greatest mastoid breadth, 14.3; length of mastoids, 8.8; interorbital constriction, 6.9; length of nasals, 11.1; interparietal, 3.8 x 6.6; alveolar length of maxillary tooth row, 4.2.

Distribution.—Known only from Monserrate Island, Gulf of California, Mexico.

Characters.—A dark-colored insular race of the *Perognathus baileyi* group of pocket mice. Differs from the mainland race *Perognathus baileyi extimus* Nelson and Goldman in distinctly darker coloration with less of the cinnamon overwash, in having a more highly arched skull (antero-posteriorly), smaller, less inflated mastoids, smaller audital bullae, and broader, heavier jugals. The interparietal is also longer and narrower without a distinct fifth anterior angle.

Remarks.—This insular race with its dark coloration and small mastoids is set off sharply from all other races of *Perognathus baileyi*.

Specimens Examined.—Twelve, all from Monserrate Island.

Perognathus penicillatus minimus subsp. nov.

TURNER'S ISLAND POCKET MOUSE

Type.—Male adult, skull and skin; no. 50,424, collection of California Institute of Technology; Turner's Island (latitude 28° 43' N., longitude 112° 19' W.), Gulf of California, Sonora, Mexico; December 31, 1931; collected by W. H. Burt; original no. 3322.

Measurements.—*Type*: Total length, 162 mm., tail vertebrae, 97; hind foot, 20; ear from crown, 5 (from notch, dry skin, 6.2). Skull: greatest length, 23.9; basal length (groove on incisor to condyle), 19.5; greatest mastoid breadth, 12.5; length of mastoids, 7.1; interorbital constriction, 6.2; length of nasals, 9.2; interparietal, 3.6 x 7.1; alveolar length of maxillary tooth row, 3.5.

Distribution.—Confined, as far as known, to Turner's Island, Gulf of California, Mexico.

Characters.—A small, dark-colored race of the *Perognathus penicillatus* group. Coloration of upperparts "blackish brown (1)" (Colors in quotations from Ridgway, Color Standards and Color Nomenclature, 1912) interspersed with "light pinkish cinnamon;" bases of hairs "plumbeous;" dorsal surface of

tail pale "bister;" ventral surface soiled yellowish white; lateral line present, but indistinct. Skull small with small mastoids and audital bullae. Differs from *Perognathus penicillatus seri* Nelson from Tiburón Island in smaller size, darker coloration of upperparts (general tone olivaceous), paler dorsal surface of tail, and smaller skull with smaller, more rounded mastoids. Differs from *Perognathus penicillatus pricei* Allen chiefly in smaller size and more olivaceous, less reddish, coloration and more rounded skull.

Remarks.—Turner's Island lies one and one-fourth miles south of Tiburón, is rather rough, but accessible from the east side. The one specimen of *minimum* was taken in the bottom of a small wash where the soil was slightly sandy. I do not necessarily approve of naming a race on one specimen, but this one is so distinct both in skin and skull characters from any one of a large series of *seri* from Tiburón Island that I do not hesitate to separate it from that race by name.

Specimen examined.—One, the type.

Perognathus spinatus guardiae subsp. nov.

ANGEL DE LA GUARDIA POCKET MOUSE

Type.—Male adult, skull and skin; no. 50,495, collection of California Institute of Technology; Puerto Refugio, north end of Angel de la Guardia Island (altitude 30 feet), Gulf of California, Lower California, Mexico; January 7, 1932; collected by W. H. Burt; original no. 3393.

Measurements.—*Type*: Total length, 164 mm.; tail vertebrae, 89; hind foot, 22; ear from crown, 5 (from notch, dry skin, 6.7). Skull: greatest length, 24.1; basal length (groove on incisor to condyle), 19.6; greatest mastoid breadth, 12.1; length of mastoids, 6.9; interorbital constriction, 6.1; length of nasals, 9.7; interparietal, 3.0 x 7.0; alveolar length of maxillary tooth row, 4.0.

Distribution.—Known only from Angel de la Guardia Island, Gulf of California, Mexico, where specimens were taken in bottoms of washes and on low flat areas.

Characters.—A small-sized, light-colored race of the *Perognathus spinatus* group, resembling *Perognathus spinatus evermanni* Nelson and Goldman from Mejía Island to the north, but somewhat larger and more pallid in coloration. It is in fact the palest member of the *spinatus* group known from the islands of the gulf. Lateral line less distinct than in *evermanni*, rump spines present, but not conspicuous; tail tuft less prominent than in most races of *spinatus*. Skull similar to that of *evermanni*, but interpterygoid space wider and pterygoids less flattened when viewed from ventral surface; interparietal averages smaller. Differs from specimens taken at Concepción Bay on the mainland of Lower California chiefly in smaller size and paler coloration.

Remarks.—Although the channel separating Angel de la Guardia Island from Mejía Island is but 150 yards across, nevertheless it has been an effective barrier in isolating the two populations of pocket mice which have developed along slightly different lines since the time of isolation.

Specimens examined.—Forty-one, all from Angel de la Guardia Island.

***Perognathus spinatus marcosensis* subsp. nov.**

SAN MARCOS ISLAND POCKET MOUSE

Type.—Male adult, skull and skin; no. 50,604, collection of California Institute of Technology; San Marcos Island (latitude 27° 13' N., longitude 112° 05' W.), Gulf of California, Lower California, Mexico; January 18, 1932; collected by W. H. Burt; original no. 3502.

Measurements.—*Type*: Total length, 174 mm.; tail vertebrae, 102; hind foot, 22; ear from crown, 5 (from notch, dry skin, 7.8). Skull: greatest length, 25.4; basal length (groove on incisor to condyle), 20.9; greatest mastoid breadth, 12.5; length of mastoids, 7.5; interorbital constriction, 6.2; length of nasals, 9.8; interparietal, 3.6 x 7.1; alveolar length of maxillary tooth row, 3.6.

Distribution.—Known only from San Marcos Island, Gulf of California, Mexico.

Characters.—A small, dark-colored race of *Perognathus*, approaching in external characters specimens from Concepción Bay, Lower California, but differing from them in smaller size, relatively longer tail, relatively longer nasals, smaller interparietal, and paler coloration. Lateral line present but indistinct; median rump spines black-tipped, lateral ones white. Skull small; nasals relatively long, straight sided for posterior one-half; mastoids and audital bullae small. Differs from *guardiae* chiefly in darker coloration and relatively longer tail.

Specimens examined.—Fourteen skins and eighteen skulls, all from San Marcos Island.

***Perognathus spinatus pullus* subsp. nov.**

CORONADOS ISLAND POCKET MOUSE

Type.—Male adult, skull and skin; no. 50,324, collection of California Institute of Technology; Coronados Island (latitude 26° 06' N., longitude 111° 18' W.), Gulf of California, Lower California, Mexico; December 20, 1931; collected by W. H. Burt; original no. 3222.

Measurements.—*Type*: Total length, 192 mm.; tail vertebrae, 111; hind foot, 23; ear from crown, 6 (from notch, dry skin, 8.2). Skull: greatest length, 25.8; basal length (groove on incisor to condyle), 21.3; greatest mastoid breadth, 12.6; length of mastoids, 7.3; interorbital constriction, 6.4; length of nasals, 10.0; interparietal, 4.1 x 7.8; alveolar length of maxillary tooth row, 3.6.

Distribution.—Confined, as far as known, to Coronados Island, Gulf of California, Mexico.

Characters.—A medium-sized, dark-colored race of the *Perognathus spinatus* group; set off sharply from *Perognathus spinatus occultus* Nelson from Carmen Island, its nearest island neighbor, by distinctly darker coloration of upperparts (less yellowish), slightly larger size, longer tail, lighter dentition, longer nasals, and more inflated audital bullae. Differs from specimens taken on the peninsula at Concepción Bay in larger size, slightly paler coloration without the yellowish

lateral line (white of underparts meets the dark upperparts abruptly), and more prominent tuft on end of tail.

Remarks.—Coronados Island is a small volcanic island about one and three-fourths miles long, north and south, and one and one-half miles wide. It is one and one-half miles from the mainland at the nearest point. There is a low sand spit on the southwest side of the island, otherwise it is rough and covered with dark brown (nearly black in some places) lava. The dark color of the pocket mice harmonizes with the dark background of the island.

While specimens from Coronados Island are nearest in color to those from Concepción Bay on the mainland, they are closer to *occultus* from nearby Carmen Island in skull characters and in having the pronounced tuft on the terminal portion of the tail.

Specimens examined.—Eight, all from Coronados Island.

***Perognathus spinatus seorsus* subsp. nov.**

DANZANTE ISLAND POCKET MOUSE

Type.—Female adult, skull and skin; no. 50,307, collection of California Institute of Technology; Danzante Island (latitude 25° 47' N., longitude 111° 11' W.), Gulf of California, Lower California, Mexico; December 17, 1931; collected by W. H. Burt; original no. 3205.

Measurements.—*Type*: Total length, 187 mm.; tail vertebrae, 104; hind foot, 22; ear from crown, 5 (from notch, dry skin, 7). Skull: greatest length, 25.7; basal length (groove on incisor to condyle), 21.4; greatest mastoid breadth, 12.3; length of mastoids, 7.2; interorbital constriction, 6.7; length of nasals, 10.1; interparietal, 3.6 x 7.6; alveolar length of maxillary tooth row, 3.6.

Distribution.—Known only from Danzante Island, Gulf of California, Mexico.

Characters.—A medium-sized, dark-colored *Perognathus*, intermediate in color between *occultus* from Carmen Island and *pullus* from Coronados Island. Differs from *occultus* chiefly in darker coloration and in having more rounded audital bullae and smaller mastoids. Differs from *pullus* in somewhat paler coloration with more of the yellowish admixture of upperparts, and in shorter nasals and smaller interparietal. Differs from *Perognathus spinatus bryanti* Merriam from San José Island in smaller size, relatively shorter tail, and darker coloration. Differs from *Perognathus spinatus peninsulæ* Merriam in darker coloration, more rounded and more highly arched skull with nasals more deeply emarginate at posterior termination, and in smaller mastoids.

Remarks.—Danzante is another small island only one and one-half miles from the mainland and about the same distance from Carmen Island. It is one and one-half miles in length by nearly a mile in width and is quite rough. The specimens on which the above description is based were taken along a small beach on the southwest side of the island.

Specimens examined.—Seven, all from Danzante Island.

Perognathus spinatus latijugularis subsp. nov.

SAN FRANCISCO ISLAND POCKET MOUSE

Type.—Male adult, skull and skin; no. 18,020, collection of Donald R. Dickey; San Francisco Island (latitude 24° 50' N., longitude 110° 34' W.), Gulf of California, Lower California, Mexico; March 19, 1930; collected by H. H. Sheldon; original no. 6298.

Measurements.—*Type*: Total length, 188 mm.; tail vertebrae, 110; hind foot, 22; ear from notch, 9 (dry skin, 7.1). Skull: greatest length, 25.7; basal length (groove on incisor to condyle), 21.2; greatest mastoid breadth, 12.7; length of mastoids, 7.8; interorbital constriction, 6.7; length of nasals, 9.3; interparietal, 3.7 x 7.5; maxillary tooth row, 4.0.

Distribution.—Known only from San Francisco Island, Gulf of California, Mexico.

Characters.—A medium-sized, dark-colored *Perognathus* with wide, flat jugals. The lateral line is indistinct. Skull medium-sized (see measurements); nasals usually tapering toward posterior termination which is rarely emarginate; interparietal convex on anterior border, but without a distinct fifth angle; supra-orbital ridges trenchant; jugals broad, short, and flattened dorso-ventrally; zygomatic processes of maxillary and squamosal heavy and approaching one another in center of arch; mastoids and audital bullae medium, relatively about as in *Perognathus spinatus bryanti* Merriam.

Differs from *bryanti* from San José Island in smaller size, distinctly darker coloration without the yellowish admixture on upperparts, non-emarginate nasals at posterior termination, heavier jugals, and interparietal without fifth anterior angle. Differs from *Perognathus spinatus lambi* Benson from Espíritu Santo Island in darker, less tawny coloration, darker colored ears, greater antero-posterior length of interparietal, and posteriorly tapering nasals. Differs from *peninsulae* in darker coloration and heavier jugals.

Remarks.—The San Francisco Island Pocket Mouse is set off sharply from *bryanti* to the north, *lambi* to the south, and *peninsulae* from the peninsula to the west, by its darker coloration and broad flattened jugals. It approaches *pullus* in coloration.

Specimens examined.—Eight skins and nine skulls, all from San Francisco Island.

The pocket mice that are now known to inhabit the islands of the Gulf of California, Mexico, are as follows:

Perognathus baileyi insularis Townsend. Tiburón Island, Sonora.

Perognathus baileyi fornicatus Burt. Monserrate Island, Lower California.

Perognathus penicillatus seri Nelson. Tiburón Island, Sonora.

Perognathus penicillatus minimus Burt. Turner's Island, Sonora.

- Perognathus arenarius siccus* Osgood. Cerralbo Island, Lower California.
- Perognathus spinatus evermanni* Nelson and Goldman. Mejía Island, Lower California.
- Perognathus spinatus guardiaae* Burt. Angel de la Guardia Island, Lower California.
- Perognathus spinatus marcosensis* Burt. San Marcos Island, Lower California.
- Perognathus spinatus pullus* Burt. Coronados Island (Gulf side), Lower California.
- Perognathus spinatus occultus* Nelson. Carmen Island, Lower California.
- Perognathus spinatus seorsus* Burt. Danzante Island, Lower California.
- Perognathus spinatus bryanti* Merriam. San José Island, Lower California.
- Perognathus spinatus latijugularis* Burt. San Francisco Island, Lower California.
- Perognathus spinatus lambi* Benson. Espíritu Santo Island, Lower California.

A table of measurements of all these forms is given on the next page..

MINIMUM, MAXIMUM AND AVERAGE MEASUREMENTS IN MILLIMETERS FROM THE GULF OF CALIFORNIA

	No. Specimens	Total Length	Tail Vertebrae	Hind Foot	Greatest Length of Skull	Basal Length (groove on incisor to condyle)	Greatest Mastoid Breadth	Length of Molars	Interorbital Constriction	Length of Nasals	Interparietal Length	Interparietal Width	Length of Maxillary Tooth Row
<i>P. b. insularis</i>	8	202 (185-211)	115 (103-123)	26 (24-27)	28.2 (27.2-29.3)	23.6 (22.7-24.5)	14.4 (13.8-15.1)	9.4 (9.2-9.7)	6.7 (6.2-7.1)	10.9 (10.6-12.0)	4.1 (3.5-4.4)	6.7 (6.4-7.0)	4.0 (3.8-4.2)
<i>P. b. fornicatus</i>	10	192 (179-202)	102 (94-109)	26 (25-27)	28.5 (27.9-29.1)	23.9 (23.4-24.6)	14.3 (14.1-14.5)	8.9 (8.3-9.2)	6.5 (6.3-6.9)	10.9 (10.1-11.4)	3.6 (3.4-3.9)	6.4 (6.1-6.6)	4.3 (4.0-4.4)
<i>P. b. extimus</i>	6	201 (188-223)	111 (103-124)	25 (24-27)	29.3 (28.5-30.7)	24.9 (24.2-26.7)	15.2 (14.7-15.8)	9.5 (9.3-10.2)	6.9 (6.8-7.0)	11.6 (10.1-12.5)	4.0 (3.7-4.3)	6.1 (5.8-6.3)	4.1 (4.0-4.4)
<i>P. p. seri</i>	18	171 (161-195)	98 (92-106)	23 (22-24)	24.3 (23.1-25.6)	20.2 (19.3-21.0)	13.1 (12.1-13.0)	7.8 (7.4-8.1)	5.9 (5.5-6.3)	9.0 (8.4-9.7)	3.5 (2.9-4.0)	6.6 (6.0-7.2)	3.5 (3.3-3.8)
<i>P. p. minutus</i>	1	162	97	20	23.9	19.5	12.5	7.1	6.2	9.2	3.6	7.1	3.5
<i>P. s. evermanni</i>	4	151 (144-155)	79 (76-82)	21 (20-21)	23.9 (23.2-24.8)	19.8 (19.4-20.4)	11.8 (11.7-11.9)	6.7 (6.6-6.8)	5.8 (5.8-5.9)	9.3 (8.8-9.4)	3.3 (3.1-3.5)	7.4 (7.3-7.5)	3.5 (3.4-3.6)
<i>P. s. guardiae</i>	36	161 (140-175)	87 (75-96)	22.5 (20-23)	24.6 (23.3-26.2)	20.2 (18.8-21.4)	12.1 (11.3-12.7)	6.9 (6.4-7.3)	6.0 (5.6-6.5)	9.8 (8.6-10.6)	3.0 (2.6-3.5)	7.1 (6.4-7.6)	3.7 (3.5-4.1)
<i>P. s. marcosensis</i>	17	168 (150-178)	97 (88-103)	21 (21-22)	24.4 (22.2-25.5)	20.0 (18.5-20.5)	11.9 (11.4-12.5)	7.0 (6.4-7.5)	6.1 (5.6-6.4)	9.3 (8.2-10.0)	3.6 (3.4-4.1)	7.1 (6.7-7.5)	3.6 (3.4-3.8)
<i>P. s. pallus</i>	7	183 (170-192)	104 (96-111)	23 (22-23)	25.8 (25.1-26.5)	21.3 (20.5-22.2)	12.7 (12.6-12.9)	7.3 (6.9-7.6)	6.4 (6.2-6.5)	10.3 (9.9-10.8)	3.9 (3.7-4.1)	7.8 (7.6-8.0)	3.5 (3.4-3.7)
<i>P. s. occultus</i>	5	182 (168-205)	100 (90-115)	22 (21-23)	25.5 (23.3-27.3)	20.9 (19.1-22.4)	12.6 (11.7-13.0)	7.2 (6.5-7.9)	6.5 (6.1-6.8)	9.8 (8.9-10.5)	3.8 (3.6-4.0)	7.6 (7.5-7.7)	3.9 (3.6-4.0)
<i>P. s. seorsus</i>	7	181 (167-196)	103 (98-111)	23 (22-24)	25.1 (24.5-25.7)	21.0 (20.4-21.4)	12.3 (12.0-12.4)	7.2 (7.0-7.4)	6.5 (6.3-7.1)	9.8 (9.0-10.6)	3.6 (3.5-3.6)	7.3 (6.9-7.6)	3.7 (3.6-3.8)
<i>P. s. bryanti</i>	23	190 (166-203)	113 (88-125)	24 (23-25)	25.5 (24.1-26.7)	21.0 (19.8-22.0)	12.7 (12.2-13.5)	7.7 (7.1-8.2)	6.7 (6.3-7.4)	10.1 (9.2-11.4)	3.9 (3.4-4.4)	7.7 (6.9-8.4)	3.6 (3.4-4.0)
<i>P. s. latipigularis</i>	9	179 (170-188)	106 (100-110)	22 (22-22)	25.5 (24.2-26.8)	21.1 (20.4-22.0)	12.6 (12.2-12.9)	7.5 (7.2-7.8)	6.7 (6.5-7.0)	9.5 (9.0-10.3)	3.6 (3.5-3.7)	7.3 (6.9-7.5)	3.9 (3.6-4.0)
<i>P. s. lambi</i>	8	175 (163-187)	99 (89-107)	23 (22-24)	25.7 (25.1-26.6)	21.1 (20.6-21.5)	12.2 (11.9-12.7)	7.0 (6.6-7.2)	6.8 (6.2-7.1)	10.2 (9.8-11.0)	3.2 (3.1-3.3)	7.5 (7.1-8.0)	3.7 (3.4-3.9)

Genus **PEROMYSCUS**. WHITE-FOOTED MICE**Peromyscus sejugis** sp. nov.

SANTA CRUZ ISLAND MOUSE

Type.—Male adult, skull and skin; no. 50,632, collection of California Institute of Technology; Santa Cruz Island (latitude 25° 17' N., longitude 110° 43' W.), Gulf of California, Lower California, Mexico; January 23, 1932; collected by W. H. Burt; original no. 3530.

Measurements.—*Type*: Total length, 187 mm.; tail vertebrae, 89; hind foot, 23; ear from crown, 16. Skull: greatest length, 27.3; condylo-basal length, 25.0; basilar length of Hensel, 21.7; zygomatic breadth, 14.0; interorbital constriction, 4.0; interparietal, 8.8 x 2.7; length of nasals, 11.0; shelf of bony palate, 4.3; maxillary tooth row, 4.1. Averages of 24 specimens from Santa Cruz Island—Body: 173; 85; 22; 16. Skull: 26.3; 23.8; 20.4; 13.1; 4.0; 8.7 x 2.8; 10.4; 4.1; 3.9.

Distribution.—Known from Santa Cruz and San Diego Islands, Gulf of California, Mexico.

Characters.—A large insular *Peromyscus* whose affinities are with the *maniculatus* group of mice. Color of upperparts grayish washed with "avellaneous," giving a general dull color to upperparts; underparts white; tail distinctly bi-color with narrow dorsal stripe (about 1.5 mm. wide in dry skin); ears dusky. Skull arched antero-posteriorly; rostrum heavy; nasals broad, tapering posteriorly and terminating beyond premaxillae; audital bullae relatively small; length of shelf of bony palate greater than length of maxillary tooth row.

Remarks.—*Peromyscus sejugis*, the only mammal known to inhabit Santa Cruz and San Diego Islands, is somewhat larger than *Peromyscus maniculatus coolidgei* Thomas from the peninsula. It is clearly a member of the *maniculatus* group and, as is also the case on other of the gulf islands where but one species occupies a small island, has developed to large size. Specimens from San Diego Island (latitude 25° 12' N., longitude 110° 42' W.) vary slightly from the Santa Cruz Island specimens in that the nasals are less tapering and the sutures between the frontals and the parietals form more of an angle in the median line. There is some overlapping in these characters, however, and it is thought advisable for the present not to separate them by name.

Specimens examined.—Thirty-two from Santa Cruz Island and nine from San Diego Island.

Peromyscus boylii glasselli subsp. nov.

GLASSELL WHITE-FOOTED MOUSE

Type.—Male adult, skull and skin; no. 50,349, collection of California Institute of Technology; San Pedro Nolasco Island (latitude 27° 58' N., longitude 111° 24' W.), Gulf of California, Sonora, Mexico; December 26, 1931; collected by W. H. Burt; original no. 3247.

Measurements.—*Type*: Total length, 188 mm.; tail vertebrae, 97; hind foot,

23; ear from crown, 16. Skull: greatest length, 26.5; condylo-basal length, 23.6; basilar length of Hensel, 20.2; zygomatic breadth, 13.1; interorbital constriction, 4.0; interparietal, 9.4 x 3.5; length of nasals, 10.6; shelf of bony palate, 3.6; maxillary tooth row, 4.2.

Distribution.—Known only from San Pedro Nolasco Island, Gulf of California, Mexico.

Characters.—An insular race of the *Peromyscus boylii* group of mice. Similar to *Peromyscus boylii rowleyi* (Allen) in size; color of upperparts duller and paler than in *rowleyi*; underparts white with a "vinaceous-buff" pectoral spot; ears dusky, contrasting slightly with color of upperparts. Skull similar to that of *rowleyi*, but differs in broader rostrum, more pointed nasals at posterior termination and more rounded braincase.

Remarks.—I have not seen specimens of *Peromyscus boylii spicilegus* Allen from southern Sonora, but according to Osgood (North Amer. Fauna, no. 28, p. 149, 1909) *spicilegus* is larger and more richly colored than *rowleyi* which would also distinguish it from *glasselli*.

This race is named for Mr. Steve Glassell, a member of the party on board Mr. Pemberton's boat, whose assistance aided to no small degree in the collecting of a number of the island forms.

Specimens examined.—Seven, all from San Pedro Nolasco Island.

Peromyscus collatus sp. nov.

TURNER'S ISLAND CANYON MOUSE

Type.—Female adult, skull and skin; no. 50,432, collection of California Institute of Technology; Turner's Island (latitude 28° 43' N., longitude 112° 19' W.), Gulf of California, Sonora, Mexico; December 31, 1931; collected by W. H. Burt; original no. 3330.

Measurements.—*Type*: Total length, 170 mm.; tail vertebrae, 90; hind foot, 20; ear from crown, 15. Skull: greatest length, 23.9; condylo-basal length, 21.0; basilar length of Hensel, 17.5; zygomatic breadth, 12.0; interorbital constriction, 3.9; interparietal, 8.0 x 3.2; length of nasals, 8.5; shelf of bony palate, 4.0; maxillary tooth row, 3.5. Averages of ten adults—Body: 174; 94; 20; 15. Skull: 24.0; 21.3; 17.7; 12.3; 3.9; 8.3 x 2.9; 8.7; 3.9; 3.5.

Distribution.—Known only from Turner's Island, Gulf of California, Mexico.

Characters.—A member of the *Peromyscus crinitus* group of mice. Externally similar to *Peromyscus eremicus tiburonensis* Mearns especially in coloration and pelage; color darker and richer than in *Peromyscus crinitus stephensi* Mearns; size about as in *tiburonensis* and *stephensi*. Skull with zygomata compressed anteriorly; rostrum depressed, short, and broad; first and second upper molars with rudimentary accessory tubercles between outer primary tubercles as in

stephensi, but differing from that form in broader, shorter rostrum with the correlated broad incisors, and in having somewhat less inflated audital bullae.

Remarks.—The Turner's Island mouse combines the characters of *crintus* and *eremicus* by showing a striking resemblance externally to members of the species *eremicus*, especially in the scantily haired tail, and in having the skull characters of *crintus*.

Specimens examined.—Nineteen, all from Turner's Island.

Peromyscus pseudocrinitus sp. nov.

CORONADOS ISLAND CANYON MOUSE

Type.—Male adult, skull and skin; no. 50,333, collection of California Institute of Technology; Coronados Island (latitude 26° 06' N., longitude 111° 18' W.), Gulf of California, Lower California, Mexico; December 20, 1931; collected by W. H. Burt; original no. 3231.

Measurements.—*Type*: Total length, 191 mm.; tail vertebrae, 105; hind foot, 21; ear from crown, 17. Skull: greatest length, 25.6; condylo-basal length, 23.2; basilar length of Hensel, 19.7; zygomatic breadth, 12.5; interorbital constriction, 4.2; interparietal, 8.6 x 3.1; length of nasals, 9.0; shelf of bony palate, 3.5; maxillary tooth row, 3.8. Averages of six adults—Body: 194; 110; 21; 16. Skull: 25.3; 23.0; 19.4; 12.7; 4.2; 8.6 x 2.9; 9.3; 3.4; 3.8.

Distribution.—Known only from Coronados Island (Gulf side), Gulf of California, Mexico.

Characters.—An extremely dark-colored *Peromyscus* (darkest of the gulf island forms) with long, scantily haired tail which is indistinctly bi-color on the proximal two-thirds. Color of upperparts "plumbeous-black" washed with "cinamon;" underparts white. Skull in general outline similar to that of *crintus*, but larger and with relatively less inflated audital bullae; nasals broad, parallel-sided, and bluntly rounded at posterior termination; premaxillae extend slightly beyond nasals; accessory tubercles between outer primary tubercles in first and second upper molars present and more prominent than in *crintus*; shelf of bony palate shorter than length of maxillary tooth row; interparietal divided in four out of seven specimens.

Remarks.—This species is quite distinct from any other known form of *Peromyscus*. It seems to combine the characters of the subgenus *Haplomylomys* with those of *Peromyscus* even more so than does *crintus* in that the external characters are truly suggestive of the *eremicus* type of mouse, but the teeth are of the type found in the subgenus *Peromyscus*. Its closest relative seems to be *collatus* from Turner's Island, however, *pseudocrinitus* differs from *collatus* in larger size, darker coloration, broader nasals which do not taper posteriorly, and in having the shelf of the bony palate shorter than the maxillary tooth row rather than longer as in *collatus*.

Specimens examined.—Seven, all from Coronados Island.

Peromyscus caniceps sp. nov.

MONSERRATE ISLAND CANYON MOUSE

Type.—Male adult, skull and skin; no. 50,273, collection of California Institute of Technology; Monserrate Island (latitude 25° 38' N., longitude 111° 02' W.), Gulf of California, Lower California, Mexico; December 16, 1931; collected by W. H. Burt; original no. 3171.

Measurements.—*Type*: Total length, 199 mm.; tail vertebrae, 111; hind foot, 21; ear from crown, 15. Skull: greatest length, 25.6; condylo-basal length, 22.6; basilar length of Hensel, 19.4; zygomatic breadth, 13.3; interorbital constriction, 4.0; interparietal, 9.3 x 4.0; length of nasals, 9.5; shelf of bony palate, 4.2; maxillary tooth row, 3.7. Averages of sixteen adults—Body: 202; 112; 22; 15.5. Skull: 25.7; 22.9; 19.5; 13.2; 4.0; 9.3 x 4.0; 9.4; 4.0; 3.8.

Distribution.—Known only from Monserrate Island, Gulf of California, Mexico.

Characters.—A *Peromyscus* of the *eremicus* type. Back and sides heavily washed with "ochraceous-buff;" head grayish, contrasting with back and sides; lateral line indistinct; underparts white washed with buff (in some specimens the "ochraceous-buff" of the sides continues ventrally, with no break at the lateral line region, and covers the entire ventral surface except the throat and chin); tail indistinctly bi-color, dusky above, whitish below; ears dusky; young of the species grayish throughout. Skull more angular than in *pseudocritus*; zygomatic process of squamosal projects laterally noticeably beyond border of brain case, arches taper anteriorly; first and second upper molars with accessory tubercles in thirteen out of twenty specimens; shelf of bony palate longer than maxillary tooth row; auditory bullae small; nasals taper slightly posteriorly.

Remarks.—Although similar in some respects and undoubtedly belonging to the same group as *pseudocritus*, *caniceps* appears to be a distinct species. It not only differs radically in coloration from *pseudocritus*, but the skull is also distinct with its wide-spreading zygomatic processes of the squamosal, its tapering nasals, and the relative length of the shelf of the bony palate and the maxillary tooth row.

Specimens examined.—Twenty, all from Monserrate Island.

Peromyscus guardia mejiae subsp. nov.

MEJIA ISLAND MOUSE

Type.—Male adult, skull and skin; no. 50,473, collection of California Institute of Technology; Mejia Island (latitude 29° 33' N., longitude 113° 35' W.), Gulf of California, Lower California, Mexico; January 7, 1932; collected by W. H. Burt; original no. 3371.

Measurements.—*Type*: Total length, 216 mm.; tail vertebrae, 122; hind foot, 23; ear from crown, 17. Skull: greatest length, 27.1; condylo-basal length, 24.4; basilar length of Hensel, 21.0; zygomatic breadth, 12.2; interorbital con-

striction, 4.1; interparietal, 8.0 x 3.1; length of nasals, 9.9; shelf of bony palate, 4.6; maxillary tooth row, 3.9.

Distribution.—Known only from Mejía Island, Gulf of California, Mexico.

Characters.—Similar to *Peromyscus guardia guardia* Townsend from Angel de la Guardia Island but slightly larger and distinctly darker in coloration. Color of upperparts dusky with an indication of "light vinaceous-cinnamon" interspersed among the dusky hairs, in *guardia* the "light vinaceous-cinnamon" predominates on the dorsal surface; lateral line of "light vinaceous-cinnamon" indistinct, the color continuing to ventral surface, contrasting with the white ventral surface of *guardia*. Skull longer and narrower than that of *guardia*, but very similar in other respects.

Remarks.—The narrow channel separating Mejía Island from Angel de la Guardia Island has apparently been an effective barrier to the two races of mice inhabiting the respective islands.

Specimens examined.—Two from Mejía Island.

Peromyscus guardia interparietalis subsp. nov.

SAN LORENZO ISLAND MOUSE

Type.—Male adult, skull and skin; no. 50,562, collection of California Institute of Technology; South San Lorenzo Island (latitude 28° 36' N., longitude 112° 51' W.), Gulf of California, Lower California, Mexico; January 11, 1932; collected by W. H. Burt; original no. 3460.

Measurements.—*Type*: Total length, 207 mm.; tail vertebrae, 116; hind foot, 22; ear from crown, 18. Skull: greatest length, 26.3; condylo-basal length, 24.0; basilar length of Hensel, 20.4; zygomatic breadth, 13.4; interorbital constriction, 4.0; interparietal, 9.0 x 2.6; length of nasals, 10.0; shelf of bony palate, 4.1; maxillary tooth row, 4.3. Averages of five adults—Body: 200; 110; 22; 18. Skull: 26.1; 23.6; 20.1; 13.2; 4.0; 9.1 x 2.7; 9.7; 3.9; 4.0.

Distribution.—Known only from South San Lorenzo Island, Gulf of California, Mexico.

Characters.—Similar in size and coloration to *guardia*, but hind foot smaller and tail shorter. Skull differs from that of *guardia* in narrower interpterygoid fossa, shorter shelf of bony palate with incisive foramina reaching plane of first molars, and in a longer narrower interparietal. In *guardia* the interparietal does not reach the suture between the parietal and the squamosal whereas in *interparietalis* it does. From *mejiae*, *interparietalis* differs, in addition to the difference pointed out between *guardia* and *interparietalis*, in smaller size and paler coloration. Differs from *Peromyscus stephani* Townsend from San Estéban Island chiefly in longer tail, larger auditory bullae, and coloration which is less grayish and has more of the "light vinaceous-cinnamon" overwash.

Remarks.—The chain of islands from Mejía on the north to South San Lorenzo on the south forms a rather close group and it is not surprising to find closely related species of mammals on the islands of this chain. The *guardia* group of *Peromyscus* seems to be distinct from other members of the subgenus

Haplomylomys. They are large-bodied forms with characteristic skulls which are rather difficult to describe, but which, when placed in series, fall into a group of their own and not with other members of the subgenus. *Peromyscus stephani* falls in with this group also.

Specimens examined.—Eight, all from South San Lorenzo Island.

Peromyscus dickeyi sp. nov.

TORTUGA ISLAND MOUSE

Type.—Male adult, skull and skin; no. 18,100, collection of Donald R. Dickey; Tortuga Island (latitude 27° 21' N., longitude 111° 54' W.), Gulf of California, Lower California, Mexico; April 2, 1930; collected by H. H. Sheldon; original no. 6378.

Measurements.—*Type*: Total length, 185 mm.; tail vertebrae, 82; hind foot, 23; ear from notch, 18. Skull: greatest length, 26.8; condylo-basal length, 24.8; basilar length of Hensel, 21.5; zygomatic breadth, 13.8; interorbital constriction, 4.0; interparietal, 8.4 x 3.6; length of nasals, 9.8; shelf of bony palate, 4.4; maxillary tooth row, 4.6. Averages of seventeen adults—Body: 191; 91; 22; 20. Skull: 26.6; 24.3; 20.8; 13.6; 4.0; 8.6 x 3.1; 9.8; 4.2; 4.5.

Distribution.—Known only from Tortuga Island, Gulf of California, Mexico.

Characters.—A large-bodied, short-tailed mouse of the subgenus *Haplomylomys*. Color of upperparts (worn pelage) dusky washed with "pinkish cinnamon;" ears dusky, lateral line present; soles of hind feet naked; tail bi-color; underparts white with a faint pectoral spot, in some specimens, of "pinkish cinnamon." Young individuals and adults in the new pelage have the entire underparts washed with "pinkish cinnamon." June specimens in new unworn pelage are darker and more grayish than specimens in the worn pelage. Young individuals are dark gray in color. Skull broad and squarely built; zygomatic arches nearly parallel-sided; rostrum heavy; nasals wide anteriorly; premaxillae project well beyond posterior limits of nasals; incisors heavy; audital bullae small; lower jaw heavy, nearly as large as in *Peromyscus californicus insignis* Rhoads; ridges for muscle attachments prominent.

Remarks.—*Peromyscus dickeyi* represents a form quite distinct from any of the known species of the subgenus *Haplomylomys*, being the only member which has a tail decidedly shorter than the head and body.

The species is named for the late Donald R. Dickey who collected the first series on the island and whose interest made possible the work in the gulf region.

Specimens examined.—Thirty-eight skins (ten young) and forty-two skulls, all from Tortuga Island.

Peromyscus pembertoni sp. nov.

PEMBERTON MOUSE

Type.—Male adult, skull and skin; no. 50,347, collection of California Institute of Technology; San Pedro Nolasco Island (latitude 27° 58' N., longi-

tude 111° 24' W.), Gulf of California, Sonora, Mexico; December 26, 1931; collected by W. H. Burt; original no. 3245.

Measurements.—*Type*: Total length, 210 mm.; tail vertebrae, 100; hind foot, 24; ear from crown, 18. Skull: greatest length, 27.5; condylo-basal length, 25.3; basilar length of Hensel, 21.5; zygomatic breadth, 14.7; interorbital constriction, 4.0; interparietal, 9.6 x 3.2; length of nasals, 10.4; shelf of bony palate, 4.8; maxillary tooth row, 4.4. Averages of ten adults—Body: 208; 103; 24; 18. Skull: 27.3; 25.1; 21.5; 14.5; 4.0; 9.3 x 2.9; 10.1; 4.7; 4.3.

Distribution.—Known only from San Pedro Nolasco Island, Gulf of California, Mexico.

Characters.—A large-bodied, short-tailed member of the subgenus *Haplomylomys*, apparently most closely related to *dickeyi* from Tortuga Island. Color of upperparts "light vinaceous-cinnamon" lightly mixed with fine dusky lines on back, noticeably paler than *dickeyi*; head somewhat paler than back; tail bi-color, brownish above, white below; underparts white; young individuals pale slate gray; length of tail about equal to head and body. Skull distinct; most similar to that of *dickeyi*, but larger and heavier; zygomatic arches taper anteriorly; sutures between frontals and parietals form an acute angle in median line; interparietal narrow antero-posteriorly; rostrum heavy as in *dickeyi*; premaxillae extend beyond nasals. *Peromyscus pembertoni* may be distinguished from all members of the subgenus *Haplomylomys* except *dickeyi* by its relatively short tail.

Remarks.—San Pedro Nolasco Island is the only island in the gulf that is known to support two species of *Peromyscus*, the other being *Peromyscus boylii glasselli*. No other mammals were found on the island.

The species is named for Mr. J. R. Pemberton in slight recognition of his whole-hearted support in obtaining specimens from many of the inaccessible islands in the Gulf of California.

Specimens examined.—Twelve, all from San Pedro Nolasco Island.

The white-footed mice that are now known to inhabit the islands of the Gulf of California, Mexico, are as follows:

Peromyscus sejugis Burt. Santa Cruz and San Diego Islands, Lower California.

Peromyscus boylii glasselli Burt. San Pedro Nolasco Island, Sonora.

Peromyscus crinitus pallidissimus Huey. Small unnamed island in Gonzaga Bay, Lower California.

Peromyscus collatus Burt. Turner's Island, Sonora.

Peromyscus pseudocrinitus Burt. Coronados Island (Gulf side), Lower California.

Peromyscus caniceps Burt. Monserrate Island, Lower California.

Peromyscus eremicus tiburonensis Mearns. Tiburón Island, Sonora.

- Peromyscus eremicus carmeni* Townsend. Carmen Island, Lower California.
- Peromyscus eremicus cinereus* Hall. San José Island, Lower California.
- Peromyscus eremicus insulicola* Osgood. Espíritu Santo Island, Lower California.
- Peromyscus eremicus avius* Osgood. Ceralbo Island, Lower California.
- Peromyscus guardia guardia* Townsend. Angel de la Guardia Island, Lower California.
- Peromyscus guardia mejiae* Burt. Mejía Island, Lower California.
- Peromyscus guardia interparietalis* Burt. South San Lorenzo Island, Lower California.
- Peromyscus stephani* Townsend. San Estéban Island, Sonora.
- Peromyscus dickeyi* Burt. Tortuga Island, Lower California.
- Peromyscus pembertonii* Burt. San Pedro Nolasco Island, Sonora.

Genus NEOTOMA. WOOD RATS

Neotoma varia sp. nov.

TURNER'S ISLAND WOOD RAT

Type.—Female adult, skull and skin; no. 50,425, collection of California Institute of Technology; Turner's Island (latitude, 28° 43' N., longitude, 112° 19' W.), Gulf of California, Sonora, Mexico; December 31, 1931; collected by W. H. Burt; original no. 3323.

Measurements.—*Type*: Total length, 305 mm.; tail vertebrae, 140; hind foot, 33; ear from crown, 25. Skull: basilar length of Hensel, 34.3; zygomatic breadth, 22.7; interorbital constriction, 5.9; length of nasals, 16.0; length of incisive foramina, 8.5; length of palatal bridge, 6.3; maxillary tooth row, 8.0.

Distribution.—Known only from Turner's Island, Gulf of California, Mexico.

Characters.—A small, short-tailed wood rat of the *Neotoma albigula* group (see Goldman, North Amer. Fauna, no. 31, p. 14, 1910) with heavy rostrum and short palatal bridge. Similar in coloration to *Neotoma albigula albigula* Hartley but with less of the pinkish buff, especially on the cheeks. Differs from *albigula* otherwise in relatively heavier rostrum with incisors more incurved; broader nasals at posterior termination, shorter palatal bridge, lighter pterygoids, and more rounded, less prominent coronoid process. Differs from *Neotoma albigula seri* Townsend, in addition to the characters pointed out above for *albigula*, in paler coloration of dorsal surface of tail, brownish instead of blackish,

and in smaller size and shorter tail. The skull is also more arched antero-posteriorly on the dorsal surface. Differs from *Neotoma albigula melanura* Merriam and *Neotoma albigula sheldoni* Goldman chiefly in smaller size and paler coloration throughout.

The one specimen of *varia* available differs also from specimens representing the races mentioned above in the shape of the maxillary tooth rows and in the structure of the last upper molar. In all the specimens of *albigula*, *seri*, *melanura*, and *sheldoni* examined the outer border of the maxillary tooth row forms a nearly straight line whereas in *varia* the outer border is distinctly convex. The last upper molar in *varia* differs from that of all the others examined in having but two lobes with one external reentrant angle instead of three lobes with two external reentrant angles. Whether this is an abnormal condition present in the one specimen available or whether it is a constant character will not be known until more specimens are obtained from Turner's Island. This is not, however, a condition of an old individual with extremely worn teeth. In cases where the tooth is worn down nearly to the cingulum the pattern is often somewhat changed, but the teeth in this particular specimen are still relatively high crowned and unworn.

It is thought advisable, for the present at least, to give full specific designation to the Turner's Island Wood Rat because of the relative constancy in tooth pattern in the genus *Neotoma* and because of this marked divergence from specimens of *Neotoma albigula*.

Remarks.—Although wood rat nests were found to be common on Turner's Island, and some twenty traps were set, only one specimen was taken. The nests were built on the ground among cactus and brush.

Specimen examined.—One, the type.

Neotoma lepida marcosensis subsp. nov.

SAN MARCOS ISLAND WOOD RAT

Type.—Male adult, skull and skin; no. 50,600, collection of California Institute of Technology; San Marcos Island (latitude 27° 13' N., longitude, 112° 05' W.), Gulf of California, Lower California, Mexico; January 18, 1932; collected by W. H. Burt; original no. 3498.

Measurements.—Type: Total length, 380 mm.; tail vertebrae, 163; hind foot, 39; ear from crown, 31. Skull: basilar length of Hensel, 39.5; zygomatic breadth, 24.7; interorbital constriction, 6.0; length of nasals, 19.7; length of incisive foramina, 10.1; length of palatal bridge, 8.3; maxillary tooth row, 9.2.

Distribution.—Known only from San Marcos Island, Gulf of California, Mexico.

Characters.—A large, dark-colored wood rat of the *Neotoma lepida* group (see Goldman, Jour. Mammalogy, 13, 59-67, February, 1932). Coloration of upperparts grayish buff, back much darkened by black-tipped hairs; sides paler than back; a patch of buffy extending from beneath anterior portion of eye to ear; nose grayish; ears fuscous; underparts whitish, hairs plumbeous at bases except

for a pure white patch between front legs and another between hind legs, and in some cases a white streak down the mid-ventral line; tail blackish above, white below. Skull large and angular; supraorbital ridges prominent; interpterygoid fossa relatively wide; audital bullae medium.

Differs from *Neotoma lepida felipensis* Elliot from the mainland and *Neotoma lepida insularis* Townsend from Angel de la Guardia Island in larger size and darker coloration; also larger and darker than *Neotoma lepida perpallida* Goldman from San José Island or *Neotoma lepida abbreviata* Goldman from San Francisco Island; bullae larger and dentition heavier than either *Neotoma lepida vicina* Goldman from Espiritu Santo Island or *Neotoma lepida arenacea* Allen from the Cape Region.

The closest relative of *marcosensis*, as far as can be discerned from the available material, is *Neotoma lepida nudicauda* Goldman from Carmen Island. However, *marcosensis* differs from *nudicauda* in darker, less buffy coloration, the absence of the buffy lateral pectoral spots, the presence of a clear white pectoral spot, wider interpterygoid fossa, and smaller antorbital foramina.

Remarks.—This race, largest of the insular races of the *Neotoma lepida* group, occupies the rocky canyons of the island where it builds nests among the large boulders and cactus plants.

Specimens examined.—Nine, all from San Marcos Island.

Neotoma lepida latirostra subsp. nov.

DANZANTE ISLAND WOOD RAT

Type.—Female adult, skull and skin; no. 50,308, collection of California Institute of Technology; Danzante Island (latitude, 25° 47' N., longitude, 111° 11' W.), Gulf of California, Lower California, Mexico; December 17, 1931; collected by W. H. Burt; original no. 3206.

Measurements.—*Type:* Total length, 365 mm.; tail vertebrae, 158; hind foot, 38; ear from crown, 27. Skull: basilar length of Hensel, 37.5; zygomatic breadth, 23.2; interorbital constriction, 5.5; length of nasals, 17.9; length of incisive foramina, 9.4; length of palatal bridge, 7.8; maxillary tooth row, 9.1.

Distribution.—Known only from Danzante Island, Gulf of California, Mexico.

Characters.—A moderately large wood rat of the *lepida* group with broad, heavy rostrum, heavy dentition, large rounded bullae, and relatively short tail. Coloration similar to that of *arenacea*, but differs from that form in relatively shorter tail, heavier dentition, narrower interpterygoid space, longer palatal bridge, shorter incisive foramina, broader rostrum, and longer nasals. Differs from *perpallida* in larger size, relatively shorter tail, darker coloration, heavier dentition, broader rostrum, and larger audital bullae. Differs from *nudicauda* in darker coloration, larger size, heavier rostrum, and less trenchant supraorbital ridges. Also the supraoccipital, when skull is viewed from above, rises abruptly in *latirostra* whereas in *nudicauda* it slopes forward. Differs from *marcosensis* in lighter, more buffy coloration, shorter tail, lighter dentition, broader rostrum,

and more highly arched skull with less backward projection of occipital condyles.

Remarks.—The type and only specimen taken was run out of a nest built on the ground in a thicket at the edge of a small canyon. She had three embryos in her uterus.

Specimen examined.—One, the type.

Neotoma bunker sp. nov.

CORONADOS ISLAND WOOD RAT

Type.—Male adult, skull and skin; no. 50,315, collection of California Institute of Technology; Coronados Island (latitude, 26° 06' N., longitude, 111° 18' W.), Gulf of California, Lower California, Mexico; December 20, 1931; collected by W. H. Burt; original no. 3213.

Measurements.—Type: Total length, 390 mm.; tail vertebrae, 168; hind foot, 43; ear from crown, 32. Skull: basilar length of Hensel, 39.5; zygomatic breadth, 25.3; interorbital constriction, 6.0; length of nasals, 19.5; length of incisive foramina, 10.7; length of palatal bridge, 7.5; maxillary tooth row, 9.7.

Distribution.—Confined, as far as known, to Coronados Island (Gulf side), Gulf of California, Mexico.

Characters.—A medium-sized, dark-colored wood rat of the *Neotoma fuscipes* group, subgenus *Homodontomys*, (see Goldman, North Amer. Fauna, no. 31, p. 86, 1910). Hairs of upperparts deep mouse gray at bases followed by a band of vinaceous buff with black tips, giving a dark gray general appearance to upperparts; underparts deep mouse gray washed with white; tail brownish above, white below; soles of hind feet naked to heel. Skull similar to that of *Neotoma fuscipes macrotis* Thomas but with relatively shorter and broader rostrum, wider antorbital foramina, less rounded audital bullae, and more flattened braincase. The broad third upper molar with four enamel loops definitely places this species in the subgenus *Homodontomys*.

Remarks.—The poorly constructed stick houses of these rats were found commonly among the dark lava boulders and cactus on Coronados Island. This is the only known insular member of the *fuscipes* group of wood rats and its presence on Coronados Island indicates that the former range of the group probably extended much farther south in Lower California than it does at the present time. The southern limit of the range of the group as given by Goldman (*ibid.* p. 88, fig. 13) was at about 30° north latitude along the west coast of Lower California. The extremely dark coloration of *bunker* "fits in" with the general color of the background of the island which is made up almost exclusively of dark colored lava.

It is a pleasure to name this well differentiated island species for Mr. Charles D. Bunker in personal gratitude and in recognition of the inspiration he has been to those students of natural history who have been privileged to work with and learn from him.

Specimens examined.—Ten, all from Coronados Island.

Certain of the insular forms of the *Neotoma lepida* group have been considered as distinct species (see Goldman, Jour. Mammalogy, 13, 65-66, February, 1932). With sufficient material of all of the island representatives as well as those on the adjoining mainland the close relationships of the various forms are clearly indicated. It seems that the primary purpose of systematic studies—the outlining of true relationships and natural groupings—is defeated when slightly differentiated insular forms are given full specific rank chiefly because there is no present geographic intergradation with other insular forms or with those on the mainland. In connection with the present paper particular attention was given to a series each of *abbreviata* and *nudicauda* from San Francisco Island and Carmen Island respectively. Goldman (North Amer. Fauna, no. 31, pp. 49-51, 1910) treated these as distinct species, *abbreviata* because of its small size and short tail. He suggests the close relationship with the *lepida* group when in speaking of *abbreviata* he says, "Although clearly a member of the *intermedia* [*lepida*] group, this small insular wood rat is a distinct species, separable from its nearer relatives by small size and abbreviated tail." As a matter of fact a series of nine specimens of *abbreviata* at hand have an average tail length which is 45 per cent of the average total length whereas a series of seven specimens of *perpallida* from San José Island have an average tail length which is 49 per cent of the average total length—a difference of four per cent which is insignificant when one considers the variation in the group. These island forms of the *lepida* group were undoubtedly derived from the same ancestral stock and have developed along slightly different lines subsequent to isolation. It therefore seems more logical to emphasize their natural relationships by treating them as races of one species. Accordingly, *abbreviata*, *nudicauda*, and *insularis* are treated as subspecies in the present paper.

The wood rats that are now known to inhabit the islands of the Gulf of California, Mexico, are as follows:

Neotoma albigula seri Townsend. Tiburón Island, Sonora.

Neotoma varia Burt. Turner's Island, Sonora.

Neotoma lepida insularis Townsend. Angel de la Guardia Island, Lower California.

Neotoma lepida marcosensis Burt. San Marcos Island, Lower California.

Neotoma lepida nudicauda Goldman. Carmen Island, Lower California.

Neotoma lepida latirostra Burt. Danzante Island, Lower California.

Neotoma lepida perpallida Goldman. San José Island, Lower California.

Neotoma lepida abbreviata Goldman. San Francisco Island, Lower California.

Neotoma lepida vicina Goldman. Espiritu Santo Island, Lower California.

Neotoma bunkerii Burt. Coronados Island, Lower California.

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A SOUTHERN RACE OF THE SPOTTED SCREECH OWL

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Scops trichopsis was described by Johann Georg Wagler¹ from a specimen in the Würzburg Museum. This bird was part of a collection made by Dr. Petz somewhere in Mexico but the exact locality appears to be unknown. However, since the collection contained such other species as *Glaucidium gnoma* [*Glaucidium minutissimum gnoma*], *Callipepla strenua* [*Callipepla squamata squamata*], *Odontophorus meleagris* [*Cyrtonyx montezumae montezumae*], and *Diglossa barbitula* [*Diglossa barbitula barbitula*], all of which were described in the same paper, some place near the southern end of the Mexican tableland is clearly indicated. In the present connection, though, it is not necessary to designate a precise type locality.

Although several ornithologists have long been aware that there are two races of the Spotted Screech Owl, Mr. Ludlow Griscom² is the first, so far as I am aware, to indicate this in print. There has been for years material sufficient to demonstrate the fact that the Arizona and north-western Mexico population was racially very distinct from that of Central America, but which of these races was representative of typical *trichopsis* has been entirely a matter of conjecture, since there are no specimens definitely known to be from southern Mexico extant in American collec-

¹ Isis, von Oken, [25] 1832, Heft 3 [March], col. 276. (Mexico). The long description indicates, though not conclusively so, the northern race.

² Bull. Amer. Mus. Nat. Hist., 64, 1932, 169.